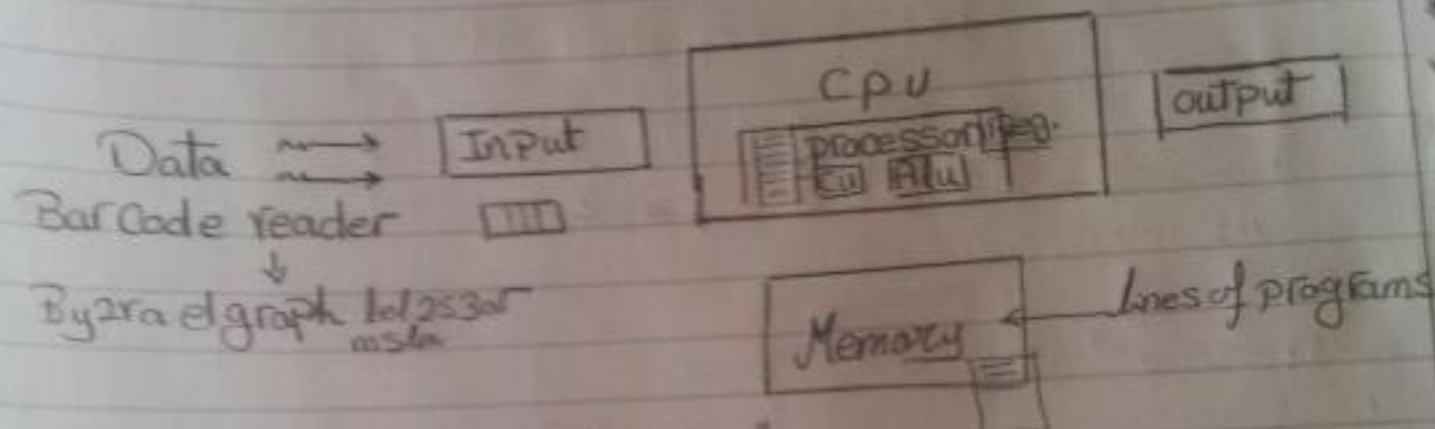
16/2/2013

Engr 1002
Computer Components:

Computers have the following Components:

- Input units [keyboard, Mouse, Scanner, light pen, joystick]
- out put units [Screen, printer, Plotter, Speakers
- Central processing units
- Memory

Data → Input
Bar Code reader
↓
By2ra el graph
CPU
processor | Reg.
Cu | Alu
output
Memory ← lines of programs

processor: المسئول عن تنفيذ البرامج
Part inside CPU. execits programms Stored in memory line.

Registors:
- Small memory
- Alu (Arithmatic and logic unit
- Cu (control unit)
- Cash memory ← Speedup execution of the programms

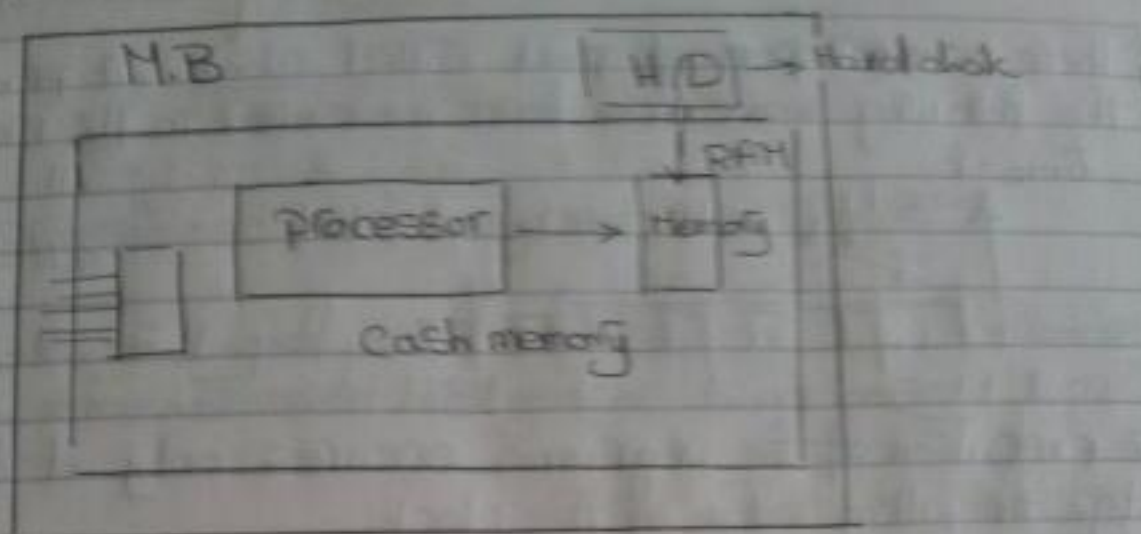
red or write

Programs → written in p.l → Application programs
Basic, C
Excel Word

1. Add 30, 40
2. Store 50
3-
4.
5.
6.
7-
8

Data
30 5
40 7
50 N

(2)

Power Supply -> Supply voltage يدعم و M.B electronic circuit

M.B

H/D -> Hard disk

RAM

Processor -> Memory

Cash memory

Register -> Bt3rfne 2ny of ani line f Bta3 5twat tnfez elprograme

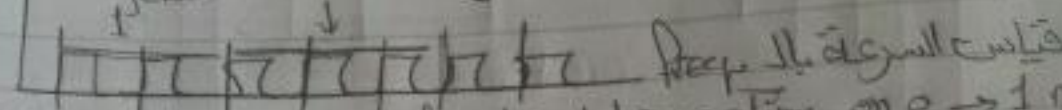
* سرعة التنفيذ تكون اسرع لاحظ ان ا line في Block واحد
- بأخد كل line وانفذه ولما تخلص في Block هقفز أنفذ
line2 من غير محتاج لنقل ال Data من أول وجديد

(3)

3ndha bybda tanfez
fa elcircute Bta5od wa2t lel tanfez

There is one important part called clock, it produces the following wave ~~from~~ form measured in HZ (Hertz)
المسئول عن السرعة
time-1

wasd 1 clock — instructure bya5d 3clock — 4 H → 4G in 1 structure

قياس السرعة الـ step

Great bta5od wa2t 3ashan t3ml transetion on 0 → 1 masln and so on
the execution of the programms occures only at the rising edge or falling edge of the clock

MIPS → mega instructions per second — المسئول عن قياس سرعة الجهاز

Speed = $\frac{\text{no. of Instruction}}{\text{time}}$

Progrmm = 5000 Instion
MIPS = 50 MIPS

time = $\frac{5000}{50M} = \frac{5000}{50\times10^6} = \frac{5\times10^3}{5\times10^7}$ = 0.5 msec = 500 M sec.

(M → 10^6)

duo 2, Quad 4 — We have more than 2 processors — operator using (pipe line)

Co-Processor → help the main Processor.

used in { - floating nos (deal with) ; - Image processing

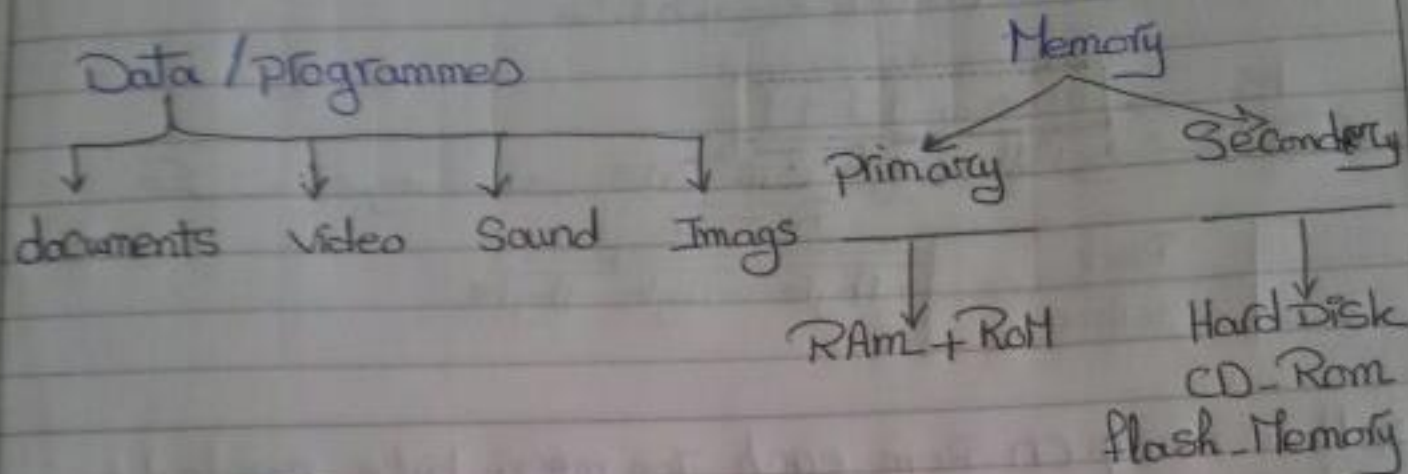
P_1	P_2	P_3	P_4
I_1			
	I_2		
		I_3	
			I_4
I_5			

المسافة اللى بينهم بتكون اصغر من مسافة الـ Inst- الواحد.
فبالتالى مش هقدر آخد كل الـ Inst- في processor واحد.

Memory

Used to Store

Data / programmes
- documents
- Video
- Sound
- Imags

Memory
- Primary → RAM + ROM
- Secondery → Hard Disk, CD-Rom, flash-Memory

⇒ ROM (Read only memory): Power up programs

⇒ RAM (Randum Accession): Read / Write

open file (HD → RAM)

Volt. time

RAM

HD

Save (RAM → HD)

يحتوي على عدد كبير من الـ IC

* Memory unit *

bit	1 or 0	
byte	8 bits	
kilo	10^3	2^{10}
mega	10^6	2^{20} → Ram
giga	10^9	2^{30} → used in HD
tera	10^{12}	2^{40} ↓ big HD

→ 10 digits 0 → 9

0V / 5V / mag / demag / opaque / transp.

Reg.

Cash mem.

RAM

Hard disk

Computer
↓
1byte ⟶ كل حرف ليه bite (يمثل الكلمة
عن الطريق ال 1 و 0)

15 ⟶ | 0000 1111 |

ممكن اعبر عن اى كلام عن طريق الألوان RGB

RGB

Red
Yellow

1byte 1byte 1byte

⇒ How many CD-Rom each 700 mega byte needed to backup 20 giga HD

كام CD-R

$$\text{no. of CD-Roms} = \frac{20 \times 2^{10}}{700} = \frac{2048}{70} =$$

giga $= 2^{10}$ mega